PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P802771/WO/1		FOR FURTHER ACTIO		orm PCT/IPEA/416		
International application No.		International filing date (day	month/year) Priorit	y date (day/month/year)		
PCT/EP2004/006338		11.06.2004	14	.06.2003		
Internation	al Patent Classification (IPC) or	national classification and IPC	\			
Applicant DAIM	LERCHRYSLER AG					
	 This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 					
2. Т	This REPORT consists of a total	of 5	_ sheets, including this co	over sheet.		
3. Т	This report is also accompanied b	y ANNEXES, comprising:				
á	a. (sent to the applicant	and to the International Bureau)	total of 4	sheets, as follows:		
	sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).					
				ontain an amendment that goes beyond a 4 of Box No. I and the Supplemental		
		10 10 10 10 10 10 10				
b (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s))						
, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).						
4. 7	This report contains indications re	elating to the following items:	<u> </u>			
	Box No. I Basis o	f the report				
[Box No. II Priority	-				
Ī	<u> </u>	ablishment of opinion with regard	to novelty, inventive step	and industrial applicability		
	$\overline{}$	unity of invention	•	•		
	Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement					
[Box No. VI Certain	documents cited				
	Box No. VII Certain	defects in the international applic	ation			
	Box No. VIII Certain	observations on the international	application			
Date of submission of the demand Date of completion of this report						
Name and mailing address of the IPEA/EP		Autho	rized officer			
Facsimile No.			hone No			

Translation

International application No.
PCT/EP2004/006338

Box	No. I	Basis of the report		
1.		n regard to the language, this report is based on the internation cated under this item.	al application in the language in v	which it was filed, unless otherwise
		This report is based on translations from the original languag which is the language of a translation furnished for the purpo		•
		international search (Rule 12.3 and 23.1(b))		!
		publication of the international application (Rule 12.4)		
		international preliminary examination (Rule 55.2 and/o		
2.	rece	h regard to the elements of the international application, this riving Office in response to an invitation under Article 14 are report):	eport is based on (replacement si referred to in this report as "or	heets which have been furnished to the iginally filed" and are not annexed to
	X	the international application as originally filed/furnished the description:		
l		-		as originally filed/furnished
		pages 3-10		11.12.2004 with letter
		pages* 1,2	_	
			leceived by this Addiority on _	
		the claims:		
		nos.		as originally filed/furnished
		nos.*		with any statement) under Article 19 11.12.2004 with letter
		nos.* <u>1-7</u>		
		nos.*	received by this Authority on	
	M	the drawings:		
		sheets 1/4-4/4		as originally filed/furnished
		sheets*	received by this Authority on	
	_	sheets*	received by this Authority on	
	Ш	a sequence listing and/or any related table(s) - see Supplement	ental Box Relating to Sequence L	isting.
3.		The amendments have resulted in the cancellation of:		
		the description, pages		
		the claims, nos.		
		the drawings, sheets/figs		
		the sequence listing (specify):		
		any table(s) related to sequence listing (specify):		
4.		This report has been established as if (some of) the amend they have been considered to go beyond the disclosure as fil	ments annexed to this report and ed, as indicated in the Supplemen	listed below had not been made, since atal Box (Rule 70.2(c)).
l		the description, pages		
		the claims, nos.		
		the drawings, sheets/figs		
		the sequence listing (specify):		
		any table(s) related to sequence listing (specify):		
*	If it	tem 4 applies, some or all of those sheets may be marked "sup	erseded."	

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement				
1.	Statement			
	Novelty (N) Claims	1-7	YES
		Claims		NO
	Inventive	step (IS) Claims	1-7	YES
				NO
	Industria	applicability (IA) Claims	1-7	YES
		Claims		NO
2.	Citations and	explanations (Rule 70.7)		
	1 This report makes reference to the following			
	•	document:		
		D1: DE 102 23	730 A (DENSO CORP) 6 February 2003	
		(2003-02-		
	2	D1 discloses	(the references in parentheses are to	
		this document)	a:	
		radial plunger	pump (10) for providing fuel at	
		high pressure	in common-rail fuel injection	
		systems of int	cernal combustion engines with a	
		drive shaft (14) mounted in a pump housing (11),	
ļ		said drive sha	aft having an eccentric shaft section	
		(17) on which	a roller (18) is mounted, and with a	
		plurality of p	pistons (70) arranged in a cylinder	
		(12a, 13a) rad	dially in relation to the drive shaft	
		(14). A pisto	n sole plate (71) is arranged on the	
		ends of the p	istons facing the roller (18), said	
		piston sole p	late contacting the peripheral	
		surface of the	e roller (18), wherein the surface of	
		the piston so	le plate (71) contacting the	
		peripheral su	rface of the roller (18) consists of	

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

a ceramic material (see D1, column 1, lines 30-37).

2.1 The subject matter of claim 1 differs from D1 in that the contacting surface of the piston sole plate consists of one of three alternative materials, namely, hard metal, a cast carbide material or a cermet.

The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

- 2.2 The problem addressed by the present invention may therefore be considered that of providing a more reliable radial plunger pump (see the application, page 1, paragraph 3).
- 2.3 The solutions indicated in 2.1 above are not known from the searched prior art. A combination of D1 with another prior art document would also be non-obvious to a person skilled in the art, since the prior art contains no suggestions that would induce a person skilled in the art to modify the radial plunger pump known from D1 so as to arrive at the subject matter of claim 1. Further, the three materials claimed in claim 1, assuming greater hardness in all cases, would lead to improved wear resistance. Claim 1 therefore involves an inventive step (PCT Article 33(3)).
- 2.4 Claims 2-7 are dependent on claim 1 and therefore likewise meet the PCT requirements for novelty and

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	inventive step.
2.5	The invention is industrially applicable in the
	field of pumps (PCT Article 33(4).